

# Advancing Aircraft Noise Impacts Research

Presented to: Noise Impacts Research  
Roadmapping Workshop

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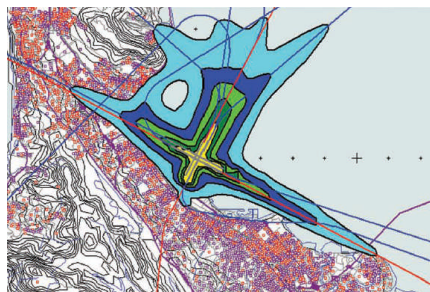
Date: 10 December 2009



Federal Aviation  
Administration



# Welcome



# Objectives for the workshop

- **Provide FAA background**
  - What are we trying to accomplish?
  - How do we plan to accomplish it?
  - Key outcomes from International Forum in Ottawa
- **Present draft roadmaps and work together to improve**
  - Sufficiently comprehensive?
  - Unnecessary elements?

*Product will be updated roadmap, and next steps will develop next level of detail*

# Noise research drivers

- **US policy and law, e.g.,**
    - ☐ Noise Control Act: *The Congress declares that it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare.*
    - ☐ National Environmental Policy Act
  - **FAA 2009-2013 Strategic Plan Goal**
    - ☐ Provide increased capacity and better operational performance in the United States airspace system that reduces congestion and meets projected demand **in an environmentally sound manner**
  - **Achieving this goal through**
    - ☐ Airspace redesign
    - ☐ Airport capacity expansion
    - ☐ Other NextGen initiatives
- depends on a robust environmental program**

*Noise remains a key environmental concern*

# Our goals for noise impacts research

**Provide scientific basis to**

- **Advance analysis and determination of aircraft noise impacts**
- **Develop optimal environmental solutions**

# FAA State-of-the-practice

- **DNL 65 dB**
  - Threshold\* of significant impact under National Environmental Policy Act (NEPA)
  - Threshold\* below which all land uses are deemed compatible; deference to local authorities
  - FICON (1992) re-affirmation of Schultz (1978) was last in-depth review for FAA
- **Case-by-case supplemental analysis**

\*Use of these thresholds in no way suggests that there is no noise beyond it!

# Critical research needs

## Workshop Focus:

- Annoyance
- Sleep Disturbance

1. Noise effects on health and welfare
2. Noise in National Parks and wilderness
3. NextGen noise modeling enhancements:  
other operational regimes and  
unconventional aircraft
4. Overall costs of aircraft noise on society

Described in

**“Advancing Aircraft Noise Impacts Research: A White Paper”**

# How we are trying to proceed

- **Systematic / comprehensive / collaborative / innovative / practical approach**
  - Interact with stakeholders to develop focused research roadmaps
  - Mine existing data
  - Build on state-of-the-art research
  - Cultivate research partnerships: with international community, beyond “traditional” noise researchers
  - Pool research resources
  - Leverage advanced technologies: IT, noise measurement, etc.



# Funding

- Modest for FY10 and FY11
- Currently planning for FY12
- Opportunities for Airport Cooperative Research Program (ACRP) FY11 and beyond



# Our challenges

- Balancing pressures for quick answers against technical rigor
- Competing environmental concerns: climate change, air quality, water quality
- Making efficient use of limited resources

# Timeline

- ✓ International forum - InterNoise Conference, Ottawa, Canada, 27 August 2009
- ✓ **First research roadmapping workshop – Keck Center of the National Academies, Washington DC, 10-11 December 2009**
- Follow-on workshop, San Diego, CA, 4 March 2010
- Annual meetings to track research progress
- Seeking to inform policy with research over next 2-5 years; policy to evolve with research maturity

# Planning panels for forum and workshops

## ☐ **Annoyance**

Kenneth Hume (UK researcher)

Sandy Lancaster (DFW airport)

Arlene Mulder (Mayor of Arlington Hts, IL; ONCC)

Paul Schomer (Consultant)

Kevin Shepherd (NASA)

Catherine Stewart (US Army)

## ☐ **Sleep Disturbance**

Mathias Basner (German researcher, soon-to-be US-based)

Patricia Davies (US PARTNER researcher)

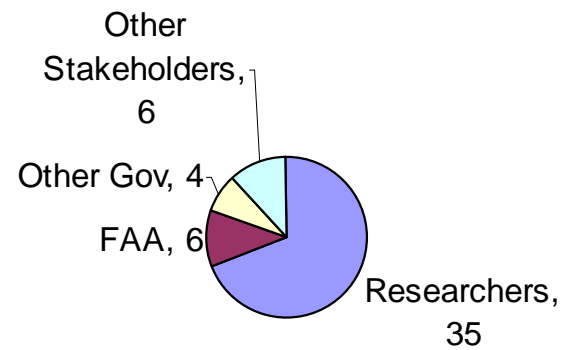
Jim Fields (US researcher)

Barbara Griefahn (German researcher)

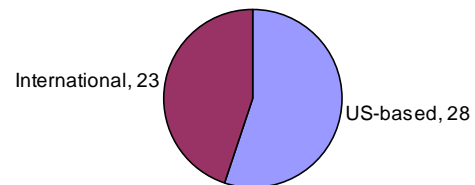
Sarah McGuire (US PARTNER researcher)

Nick Miller (Consultant)

### International Forum Attendance



**51 attendees**



# International Forum Discussions

## **Annoyance research questions**

- ☐ **Policy-related**
  - i. Improvements to %HA vs DNL (incl. metrics)**
  - ii. Impacts other than annoyance**
  - iii. Steady-state or gradual change vs. step change**
  - iv. Setting thresholds**
  
- ☐ **Effective public communication**
  
- ☐ **Factors that correlate with negative community reaction**

# International Forum Discussions

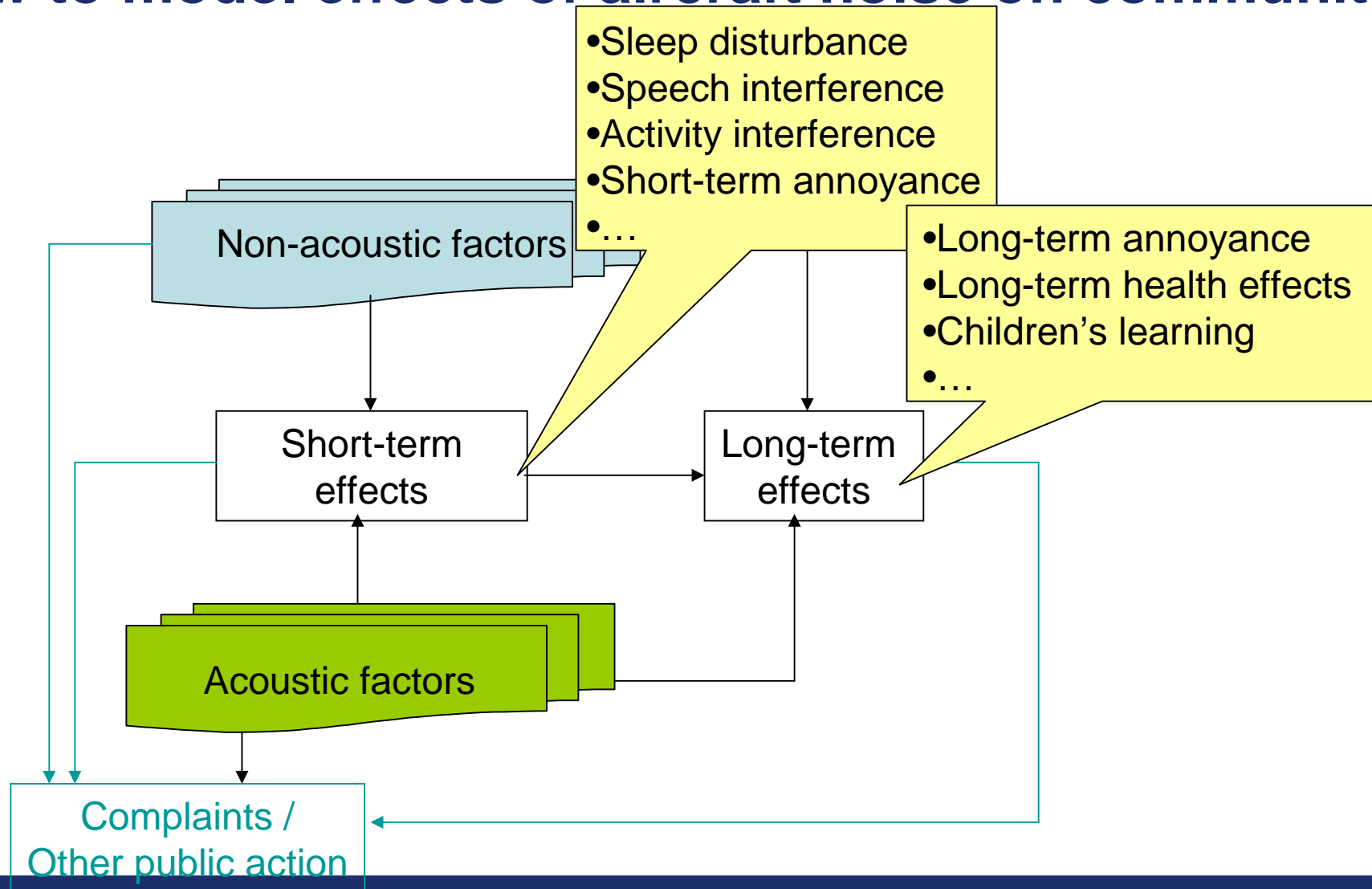
## **Sleep Disturbance research questions**

- i. Short-term vs. longer-term research**
- ii. Research & policy metrics**
- iii. Spontaneous vs. aircraft-noise-induced awakenings**
- iv. Vulnerable groups**
- v. Generalizing results**
- vi. Setting thresholds**

**Summary Report available online:**

**<http://www.fican.org/pdf/faa/IntlForumSummaryReport-11-19-09.pdf>**

# Recasting our problem: How to model effects of aircraft noise on communities





# Over the Next 2 Days

- **Walk and talk through the draft research roadmap**
  - Ask questions
  - Offer solutions / alternative paths
  - Share perspective / experience / expertise

**Thank you very much  
for your interest.**

